

ABSTRACT OF THE DISCLOSURE

A combined cycle power system is provided which can convert an open combined cycle gas turbine into a reduced or zero emissions power system. The system includes a compressor which compresses air and combusts the air with a hydrocarbon fuel. The products of combustion and the remaining portions of the air form the exhaust which is expanded through a turbine. The turbine drives the compressor and outputs power. The exhaust exits the turbine and then is routed through a heat recovery steam generator. A bottoming cycle portion of the system includes a gas generator which combusts a hydrocarbon fuel with oxygen. Water is also entered into the gas generator where it is heated and combined with the products of combustion, before entering a bottoming turbine. The water is then separated and routed back to the gas generator after preheating within the heat recovery steam generator.